



Climate impacts and adaptation options in agriculture: What we know and what we don't know

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Abstract:

Since publication of the Stern Review on the Economics of Climate Change in 2006 and the IPCC Fourth Assessment Report in 2007 it is clear that anthropogenic greenhouse gas (GHG) emissions are the main cause for recently observed climate change, and that early and bold mitigation measures will eventually be much cheaper than later adaptation to potentially drastic climate impacts. The agricultural sector is directly affected by changes in temperature, precipitation, and CO₂ concentrations in the atmosphere, but it is also contributing about one third to total greenhouse gas emissions, mainly through nitrogen fertilization, livestock and rice production, land use change and deforestation. Agriculture currently accounts for 5% of world economic output, employs 22% of the global population, and occupies 40% of the land area. In the developing countries, 70% of people live in rural areas, where agriculture is the largest supporter of livelihood and the economy is dominated by the agricultural sector. Agriculture accounts for 40% of GDP in Africa and 28% in South Asia. A large share of the world's poor population lives in arid or semi-arid regions, which are already characterized by highly volatile climate conditions. Under conditions of climate change, a world-wide increase in climate variability and extreme weather events is very likely. The connections between agricultural development and climate change reveal some fundamental issues of global justice. The industrialised countries, mostly located in medium to high latitudes, are responsible for the major share of accumulated GHG emissions, they are economically less dependent on agriculture, they will be less affected by climate impacts, and they have on average a higher adaptive capacity. Most developing countries are located in the lower latitudes, they are dependent on agriculture, they will be strongly affected by climate impacts, and they have lower (or non-existent) adaptive capacity. Creating more options for climate change adaptation and improving the adaptive capacity in the agricultural sector will be crucial for improving food security and preventing an increase in global inequality in living standards in the future. However, in the developing world this is often prevented by the lack of information, financial resources and good governance.

Source: Ask your librarian to help locate this item.

Resource Description

Communication: 

Climate Change and Human Health Literature Portal

resource focus on research or methods on how to communicate or frame issues on climate change;
surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience:

audience to whom the resource is directed

Policymaker

Exposure :

weather or climate related pathway by which climate change affects health

Extreme Weather Event, Food/Water Security, Food/Water Security, Precipitation, Temperature

Extreme Weather Event: Drought, Flooding, Other Extreme Event

Extreme Weather Event (other): Storms

Food/Water Security: Agricultural Productivity, Food Access/Distribution

Temperature: Extreme Heat

Geographic Feature:

resource focuses on specific type of geography

Rural

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

Malnutrition/Undernutrition

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Other Projection Model/Methodology: Discussion only

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status, Workers

Resource Type:

format or standard characteristic of resource

Review

Timescale: ☒

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☒

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content